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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,331	01/24/2002	Andrei Z. Broder	22136-06658	1535

7590 12/07/2004

Seth Ostrow
BROWN RAYSMAN MILLSTEIN FELDER AND STEINER LLP
900 Third Avenue
New York, NY 10022-4728

EXAMINER

HILLERY, NATHAN

ART UNIT PAPER NUMBER

2176

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/057,331	Applicant(s) BRODER ET AL.	
	Examiner Nathan Hillery	Art Unit 2176	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to communications: Petition filed on 3/31/04.
2. Claims 1 – 16 are pending in the case. Claims 1, 9, and 16 are independent.

Double Patenting

3. Applicant is advised that should claim 13 be found allowable, claim 11 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1 – 16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.
6. Claims 1 – 8 can reflect a series of mental/manual steps. The claimed invention simply manipulates abstract ideas without practical application in the technological arts. Consequently, the claimed invention does not require the technical or useful arts and, thus, fails to define patentable subject matter.
7. Claims 9 – 15 recite non-functional descriptive material, specifically software on a computer readable medium not tangibly embodied to a computer. Consequently, the claimed invention does not require the technical or useful arts and, thus, fails to define

patentable subject matter. The rejection to these claims may be overcome if an inference to some form of hardware is claimed.

8. Claim 16 is software per se and is not tangibly embodied to a computer system. Consequently, the claimed invention does not require the technical or useful arts and, thus, fails to define patentable subject matter. The rejection to these claims may be overcome if an inference to some form of hardware is claimed.

9. Further, to expedite a complete examination of the instant application the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1 – 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bharat et al. (US 6112203 A).

12. **Regarding independent claim 1**, Bharat et al. teach that *the set of documents can be produced by combining the set of results from a Web search engine in response to a user query (which we call the 'start-set'), with pages that either link to or are linked from the start-set documents ... The nodes in the start set are first scored according to their connectivity, and the number of terms of the query that appear as unique sub-*

strings in the URL of the represented documents. The score is a weighted sum of the number of directed edges to and from a node and the number of unique sub-strings of the URL that match a query term (Column 3, lines 3 – 15), which provide for receiving a document to be processed; locating a set of documents that include hyperlinks to the document; retrieving anchor text (sub-strings in the URL) associated with at least one of the hyperlinks, and parsing the anchor text (sub-strings in the URL) into one or more tokens. Bharat et al. also teach that as previously disclosed, uses the relevance weights of all of the nodes to decide whether or not to eliminate a page for user consideration. For example, prune all nodes whose relevance weight is below a predetermined threshold. The threshold can be picked in a number of ways (Column 6, lines 22 – 27), which provide that for each token: determining a weight for the token, determining whether the weight assigned to the token exceeds a threshold token weight. Bharat et al. do not explicitly teach indexing. However, it would have been obvious to one of ordinary skill in the art to be motivated to use and/or alter the invention of Bharat et al. to provide for indexing the document under the token, if the token weight assigned to the token exceeds the threshold token weight, since Bharat et al. do teach that in order to help users locate Web pages of interest, a search engine 140 maintains an index 141 of Web pages in a memory, for example, disk storage (Column 4, lines 9 – 11) and that we provide an improved ranking method 200 that can be implemented as part of the search engine 140. Alternatively, the method 200 can be implemented by one of the clients 110, or some other computer system on the path between the search engine and the clients (Column 4, lines 23 – 27).

13. **Regarding dependent claims 2 and 5**, Bharat et al. teach that *specifically, in step 220, we score each page p of the input set 201 to determine a value $\text{Score}(p)$ 225. Let n_p be the node representing page p . The score is determined by: $\text{Score}(p) = \text{in_degree} + 2 \times (\text{num_query_matches}) + \text{out_degree}$, where in_degree is the number of edges pointing at node n_p , num_query_matches is the number of unique sub-strings of the URL of the page p that exactly match a term in the user's query (Column 5, lines 57 – 64), which provide for **including in the index an indication of weight for each token under which each page is indexed, and that the weight of each token is based on its frequency of occurrence within the index.***

14. **Regarding dependent claims 3 and 4**, Bharat et al. teach that *next, we assign a relevance weight to a subset of the nodes 212. The relevance weight measures the similarity between the represented page and the query topic. As stated above, the topic implied by the user is probably broader than the query itself. Thus, matching the words of the query with the page is usually not sufficient. Instead, as described in detail below, we use a subset of the pages of the start set 201 to define a broader query topic "Q", and match the pages "P" represented in the graph with the broader query topic to determine the relevance weights of the nodes 212. Our invention is motivated by the observation that not all pages represented by nodes in the n -graph 211 are equally influential in deciding the outcome of our ranking process (Column 5, lines 21 – 33).* Bharat et al. do not explicitly teach assigning the token to a particular location; however, one of ordinary skill in the art at the time of the invention would be motivated to alter the invention of Bharat et al. to provide for **assigning to the token a location within the**

index corresponding to part of the page being indexed that is allocated for tokens having a higher degree of importance than other tokens in the same page, and for assigning to the token a location within the index that corresponds to the beginning of the page being indexed, since the skilled artisan would want to point the user to the exact location in the page or to the beginning of the page so that the user does not have to hunt for the exact location himself or become confused and/or overwhelmed by the results and information that he is trying to interpret.

15. Regarding dependent claims 6 and 7, Bharat et al. teach that *because the query topic Q 245 can include a large number of terms, and because the "vocabulary" of the various pages can vary considerably, we prefer to use term frequency weighting. More specifically, we use cosine normalization in weighting both the query topic Q and the pages P because the deviation in term vector lengths is large, specifically: ... where $w_{iq} = \text{freq}_{iq} \times \text{IDF}_i$, $w_{ij} = \text{freq}_{ij} \times \text{IDF}_i$, freq_{iq} is the frequency of (stemmed) term i in the query topic Q, freq_{ij} is the frequency of term i in page j , and IDF_i is an estimate of the inverse document frequency (IDF) of the term i in the corpus of documents, for example, in our case, a large representative sample of Web pages (Column 7, lines 10 – 29), which provide for determining a first frequency at which the anchor text appears in the index; determining a second frequency at which each token derived from the anchor text appears in the index; and assigning a weight to the token, wherein the weight is a function of the first and second frequencies, and dividing the first frequency by the second frequency to produce a weight*

quotient; and multiplying the weight quotient by an anchor text count for the token.

16. **Regarding dependent claim 8**, Bharat et al. teach that *during a connectivity analysis phase, the remaining nodes of the pruned graph are then scored according to their connectivity to determine normalized hub and authority scores for the documents. The normalized scores are used to rank the documents* (Column 3, lines 31 – 35), which provide for **determining a normalized weight for each token**.

17. **Regarding independent claim 9**, the claim incorporates substantially similar subject matter as claim 1, and is rejected along the same rationale.

18. **Regarding dependent claim 10**, the claim incorporates substantially similar subject matter as claim 2, and is rejected along the same rationale.

19. **Regarding dependent claim 11**, the claim incorporates substantially similar subject matter as claim 5, and is rejected along the same rationale.

20. **Regarding dependent claim 12**, the claim incorporates substantially similar subject matter as claim 4, and is rejected along the same rationale.

21. **Regarding dependent claim 13**, the claim incorporates substantially similar subject matter as claim 5, and is rejected along the same rationale.

22. **Regarding dependent claim 14**, the claim incorporates substantially similar subject matter as claim 6, and is rejected along the same rationale.

23. **Regarding dependent claim 15**, the claim incorporates substantially similar subject matter as claim 8, and is rejected along the same rationale.


24. **Regarding independent claim 16**, the claim incorporates substantially similar subject matter as claim 1, and is rejected along the same rationale.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Hillery whose telephone number is (571) 272-4091. The examiner can normally be reached on M - F, 10:30 a.m. - 7:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph H. Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JOSEPH FEILD
SUPERVISORY PATENT EXAMINER

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